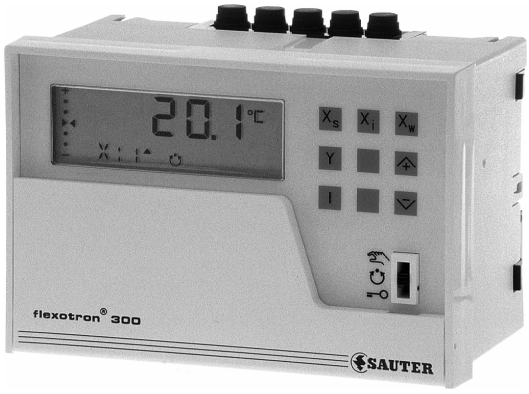

Operating instructions, part 1

RDT 100 F001 / F002
Controller for ventilation and air-conditioning

7 000 835 003 M7

About these operating instructions

With the RDT 100 controller for ventilation and air-conditioning, you are in receipt of two documents as follows:-
Part 1 (7 000 835) of these operating instructions contains all necessary information on manual and automatic modes. It is intended primarily for the user.
Part 2 (7 000 836) of the operating instructions describes how to put the controller into operation and is intended for the specialist. It also contains detailed information for project engineers and interested users.

The operating procedures have been described in this manual with the aid of illustrations. When entering numerical values, all positions must be filled, including preceding noughts.

Example: 20.5 °C Enter: 0205

In manual and automatic modes, incomplete entries are aborted automatically after two minutes. The value already entered remains unchanged. Entries are accepted only if in the permissible range, or are restricted thereto.
The position requiring an input flashes in the display (user prompting) and is marked in this manual by an arrow.
Follow the various input stations, press the corresponding keys and observe the result in the display.

To make it easier to find a function group in any of the sections, some pages are marked with the letters 'B', 'P' or 'E' and the appropriate page number.

B = Operation
P = Parameters
E = Setting

For details on parameters: see part - -, page → P 2-12
Settings: see part - -, page → E 2-62

Explanations on the parameters can be found in part 2, page 12.
Changes to the default values can be entered in part 2, page 62.

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General information

Putting into operation

As soon as it has been switched on, the RDT 100 controller for ventilation and air-conditioning is ready for operation if a control model has been chosen and the power supply is connected.
Please observe the correct power supply for each model type as follows:-
F001 requires 230 V~
F002 requires 24 V~

The stored factory settings (default settings) for the parameters for each control model permit immediate control operations. These default settings are highlighted (shaded grey) in this manual, and are designed for normal temperature control loops. Some of the default settings of some control models differ from the highlighted values.

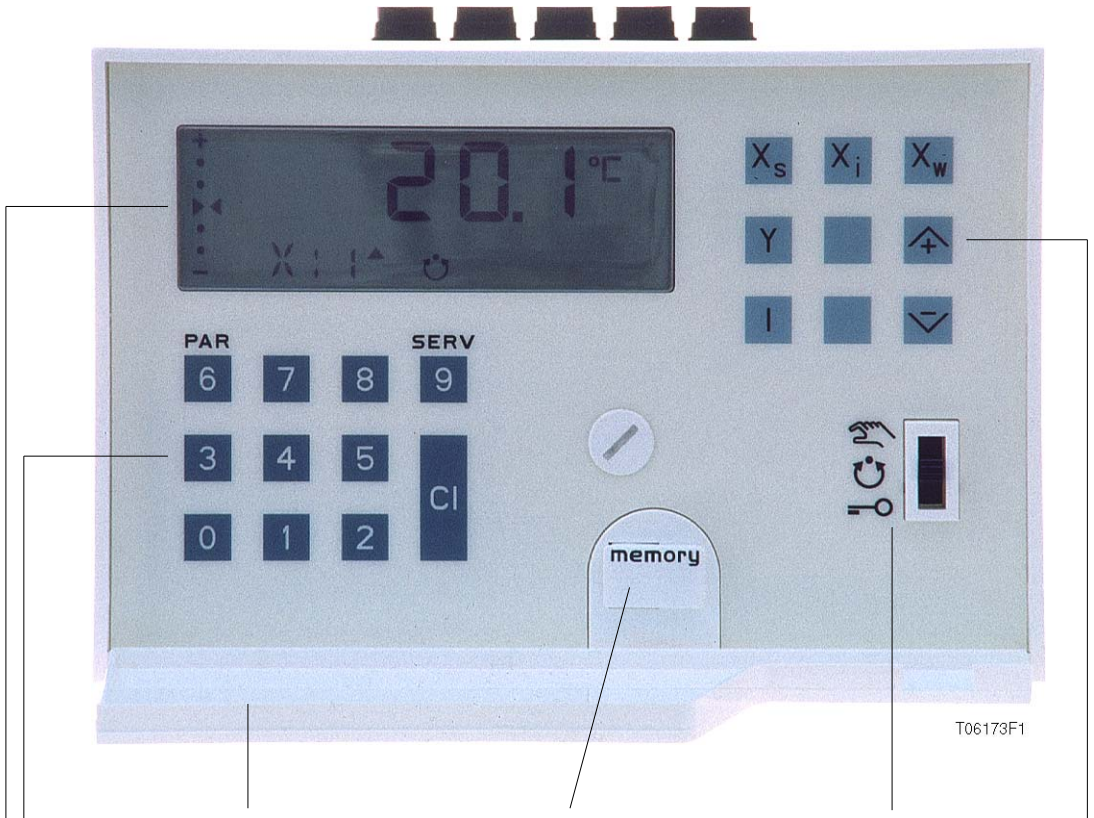
Recommended procedure

- Familiarise yourself with the controller's operating methods. Refer to the description of the front and the ‘information centre’.
- Choose the appropriate control model in accordance with the technical remit, e.g. the flow diagram. The configuration values need to be entered (once only) in the service level.
- Enter the control model's number. This stipulates the function in accordance with the block diagram on the wiring diagram. The data inputs must also be encoded by means of the jumper. All other inputs are done via the keypad. In the service level, it is advisable to make the entries in the right order.
- Set the mode switch to ‘Automatic’. The controller starts with the default values for the setpoints, P-band etc.
- Watch the plant; if necessary, match the parameters to the specific needs of the plant.

Reaction in the event of a power failure

All data and parameters are captive. In the event of a power failure, the continuous outputs drop to 0 Volt, the relay outputs cut out and the display goes blank. When power has been restored, the controller re-starts with the stored parameters. This also applies for long power failures.

Front view of controller



Flap holds instructions

Memory (option)

Mode switch

- Manual mode
- Automatic
- Service level

Service and adjustment keys

- 0 . . . 9 Numerical keys
- PAR Control parameters
- SERV Service
- Cl Clear

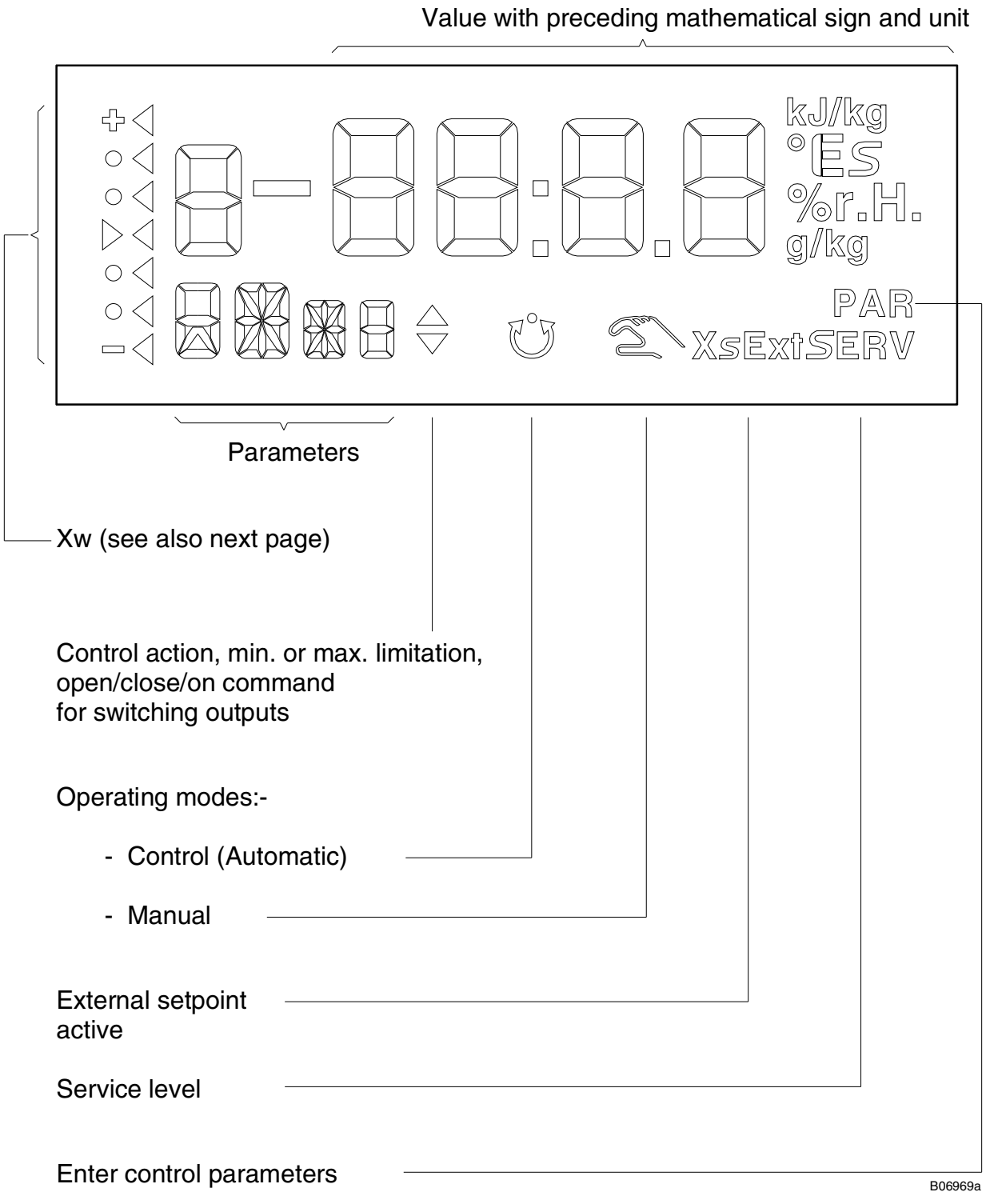
Information centre

User keys with function keys

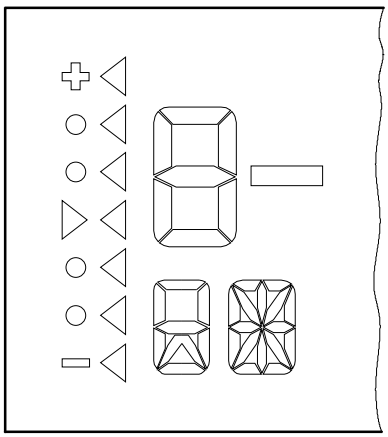
- X_s Setpoint
- X_i Actual value
- X_w Control deviation
- Y Positioning signal
- I Input
- Forwards
- Backwards and minus sign

B06968

The information centre



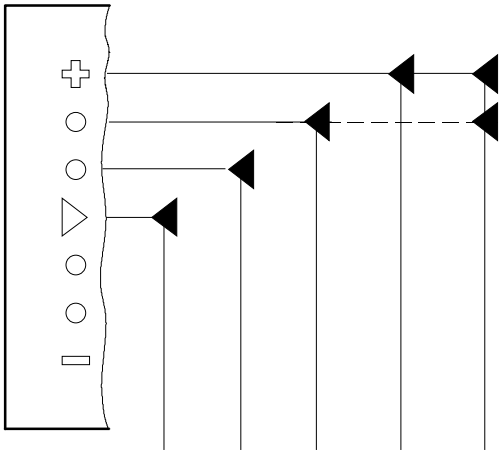
Control deviation Xw



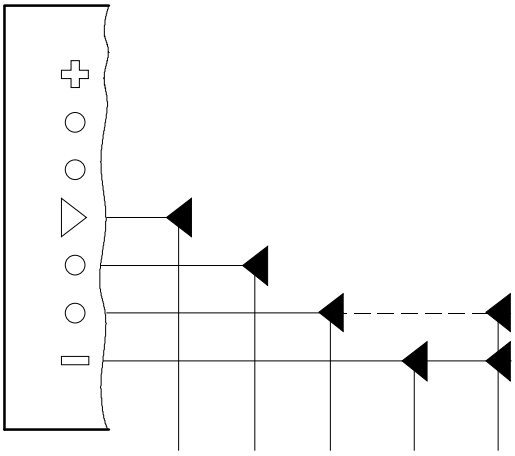
Definition:-
Control deviation = actual value – setpoint
Xw = Xi – Xs

For differential controllers:-
Control deviation = calculated action value – setpoint
Xw = cXi – Xs

Positive control deviation



Negative control deviation



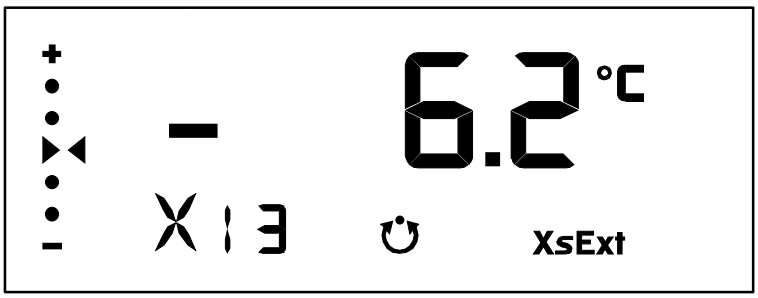
Control deviation Xw					Unit of meas.	Control deviation Xw				
≤	>					≤	<			
1,5	1,5	3,0	7,5	15,0	°C	-1,5	-1,5	-3,0	-7,5	-15,0
1,0	1,0	2,0	5,0	10,0	%, % r.H., kJ/kg	-1,0	-1,0	-2,0	-5,0	-10,0
0,2	0,2	0,4	1,0	2,0	g/kg	-0,2	-0,2	-0,4	-1,0	-2,0
50	50	100	250	500	- [1)]	-50	-50	-100	-250	-500

B06971a

1) Free unit of measurement: with respect to displayed range 0...4999

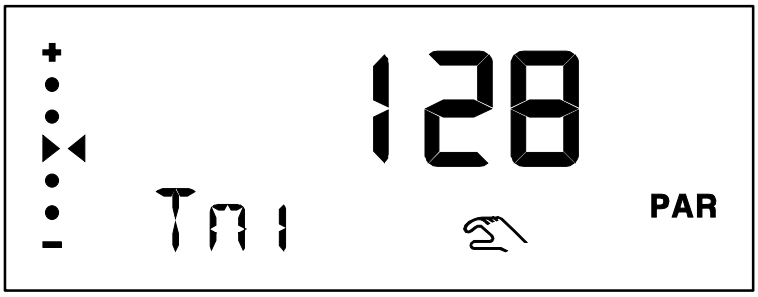
Examples

- Automatic mode
- Actual value Xi3 with unit °C
- Xw in display
- External setpoint active



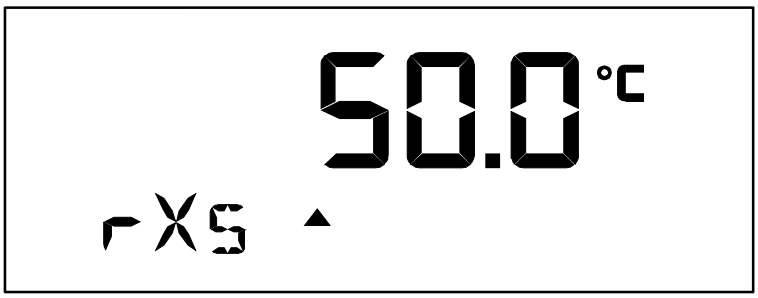
B06975

- Manual mode
- Input for control parameters
- Integral action time for controller 1



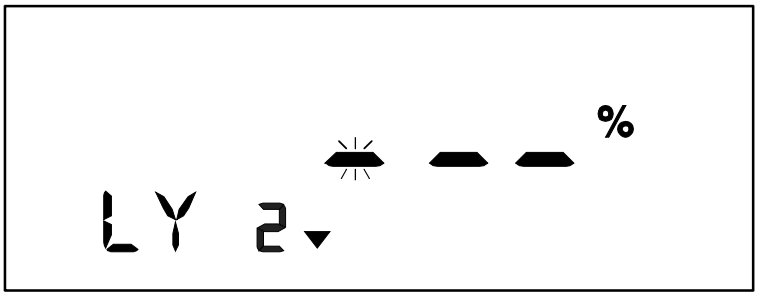
B06976

- Service level
- Upper setpoint limit 50.0 °C



B06977

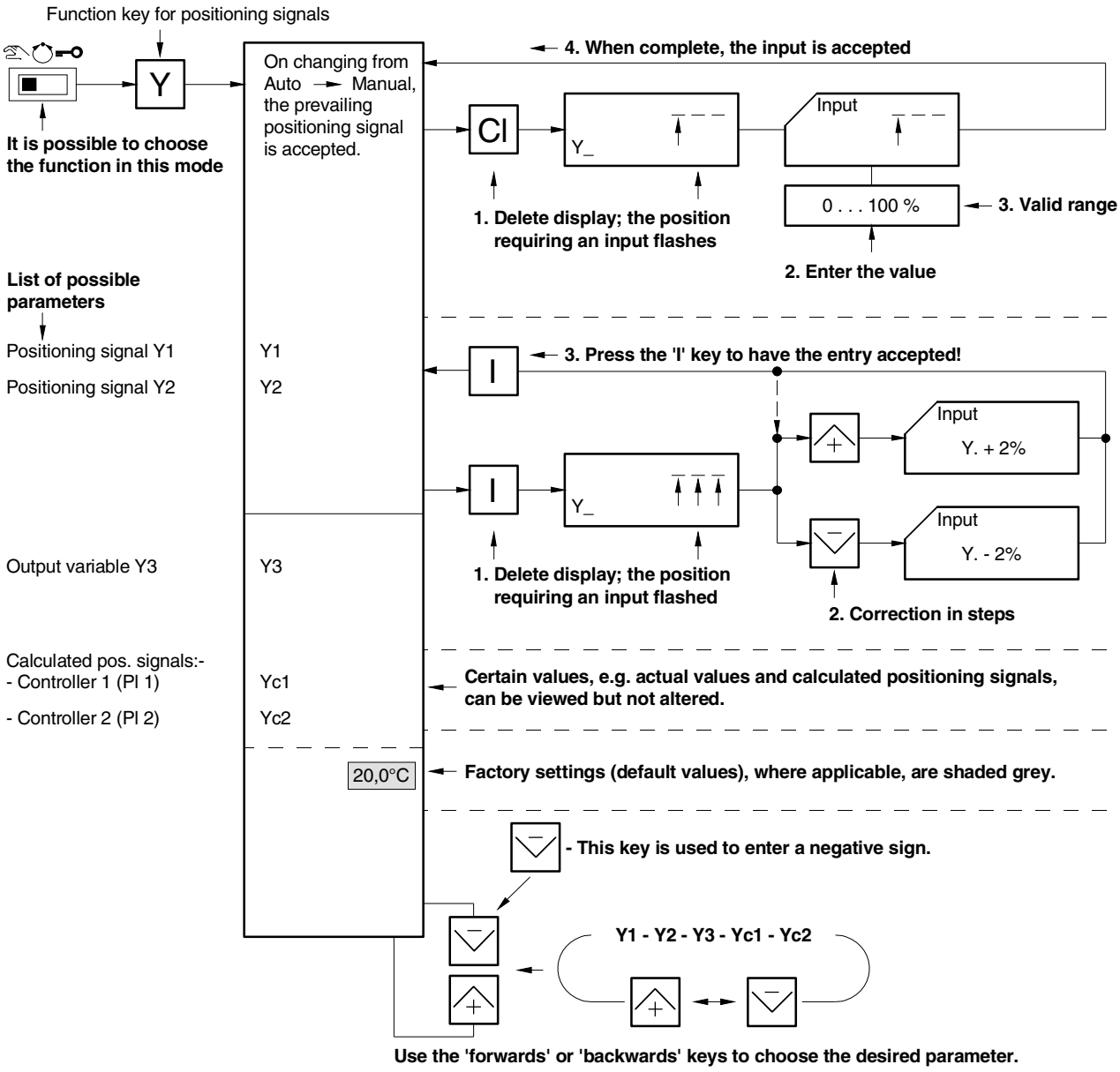
- Service level
- Minimum limitation Y2 ready for the input of the first position



B06978

For details on parameters: see part - -, page → P ????
Settings: see part - -, page → E ????

Input method


Function key for positioning signals
Y
It is possible to choose the function in this mode
On changing from Auto → Manual, the prevailing positioning signal is accepted.
4. When complete, the input is accepted
CI
Y_
Input
1. Delete display; the position requiring an input flashes
0 . . . 100 %
3. Valid range
2. Enter the value
List of possible parameters
Positioning signal Y1
Y1
Positioning signal Y2
Y2
I
3. Press the 'I' key to have the entry accepted!
Input
Y. + 2%
Input
Y. - 2%
Output variable Y3
Y3
1. Delete display; the position requiring an input flashed
2. Correction in steps
Calculated pos. signals:-
- Controller 1 (PI 1)
Yc1
- Controller 2 (PI 2)
Yc2
Certain values, e.g. actual values and calculated positioning signals, can be viewed but not altered.
20,0°C
Factory settings (default values), where applicable, are shaded grey.
- This key is used to enter a negative sign.
Y1 - Y2 - Y3 - Yc1 - Yc2
Use the 'forwards' or 'backwards' keys to choose the desired parameter.

There are two input methods:-

- Begin with CI **to enter the value; it is accepted when complete.**

- Begin with I **for toggle entries; input is accepted after you have again pressed the** I **key.**

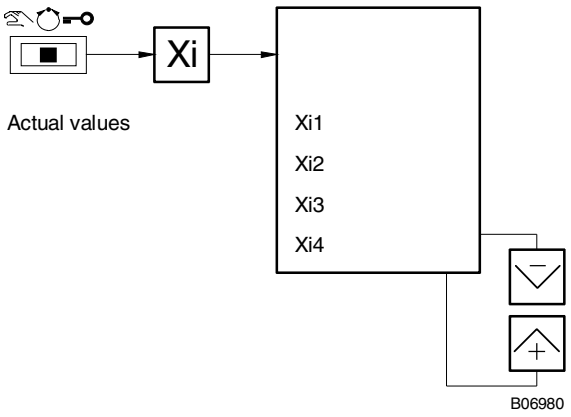
B06979

Automatic mode

Control in accordance with the setpoint

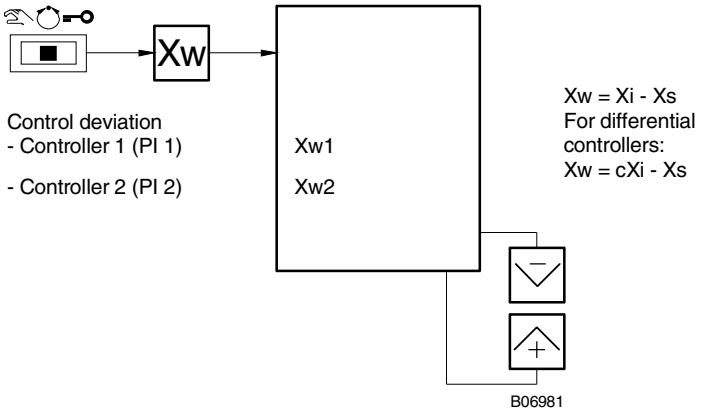
P	2-16
E	–

View actual values



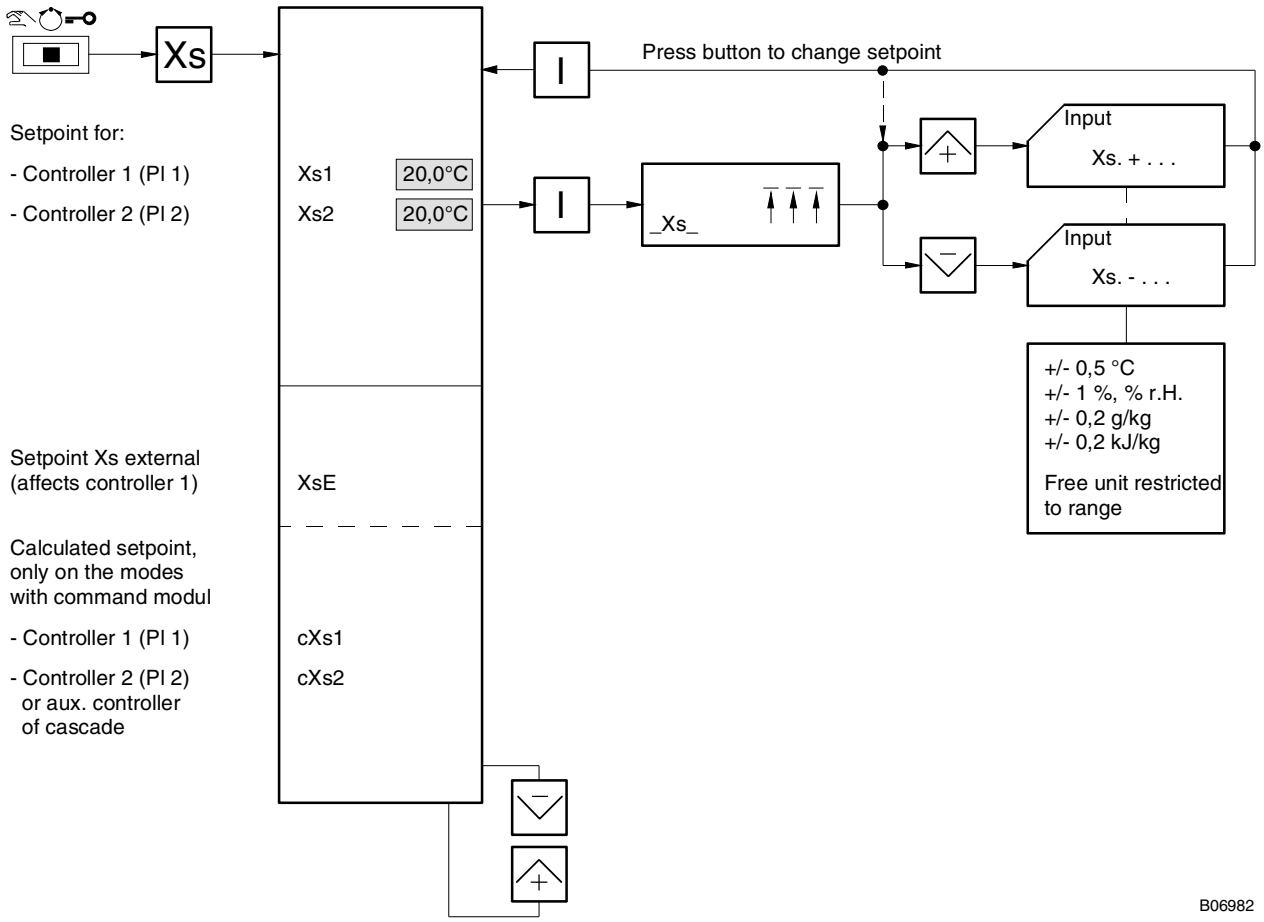
P	2-17
E	–

View control deviation



P	2-11/17
E	2-63

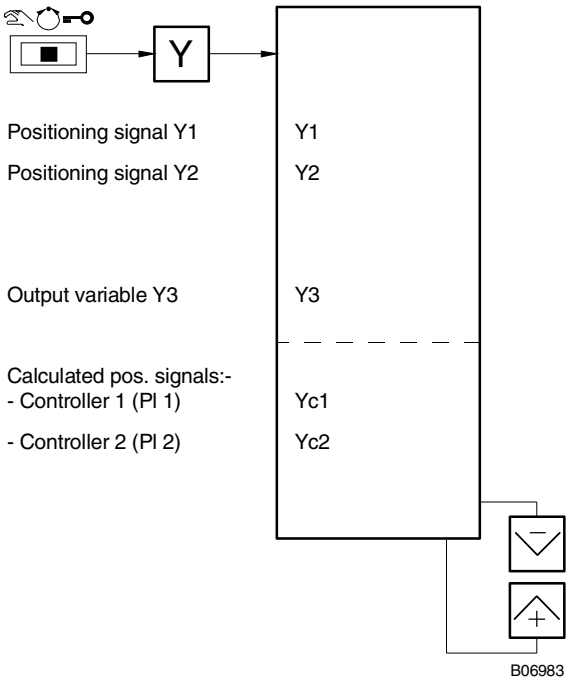
View and alter setpoints



View positioning signals and output variables

P	2-18
E	–

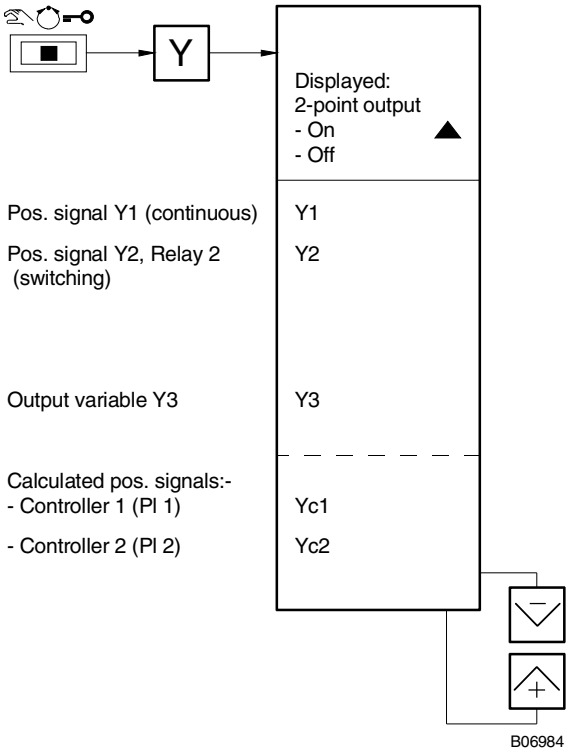
Models 0...14



View positioning signals and output variables

P	2-18
E	–

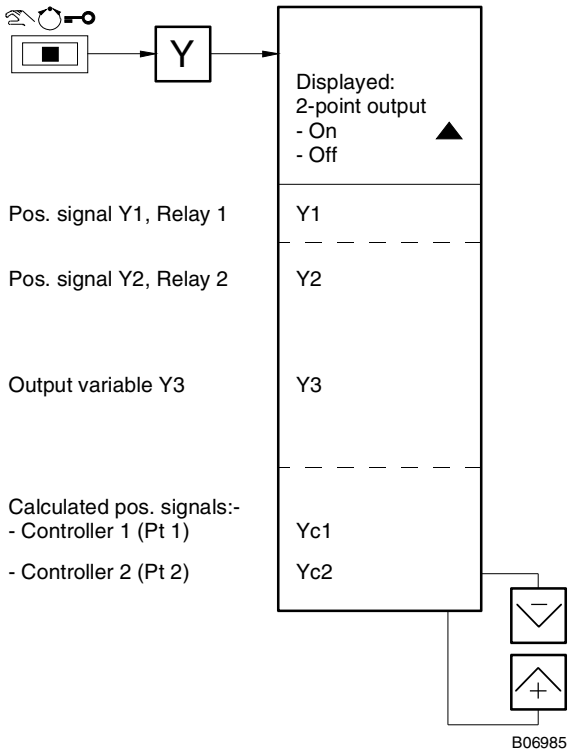
Models 15...18



View positioning signals and output variables

P	2-18
E	–

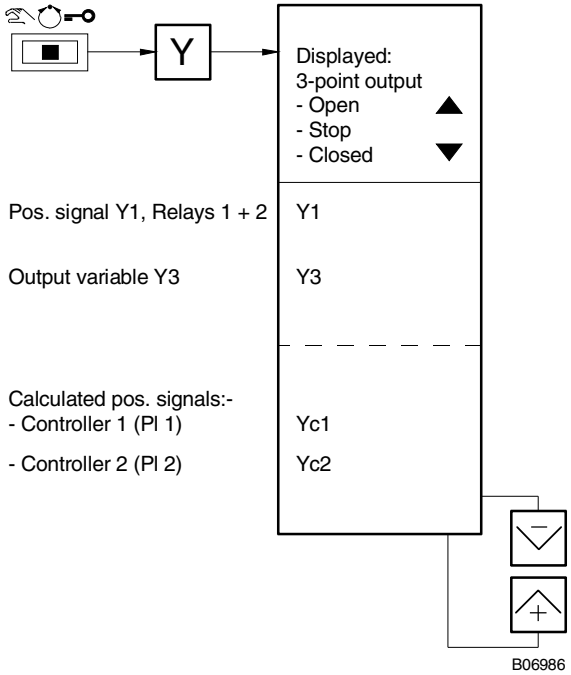
Models 20...29



View positioning signals and output variables

P	2-18
E	–

Models 30...35

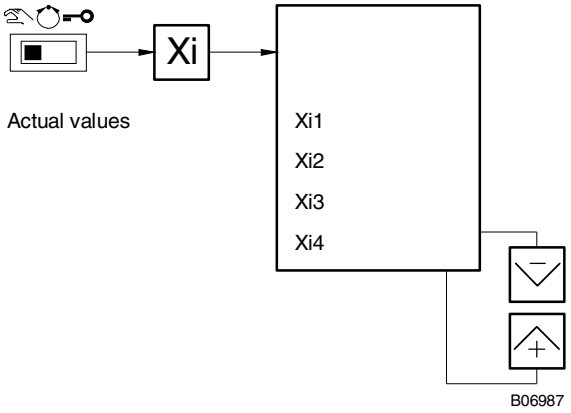


Manual mode

In this mode, you can:-
– set the positioning signals between 0...100%
– alter the setpoints
– set the control parameters.

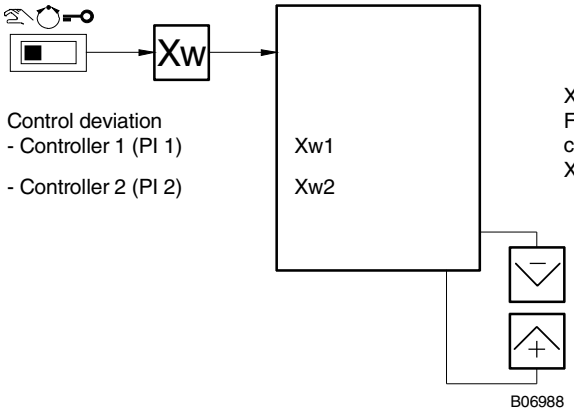
P	2-11/17
E	–

View actual values



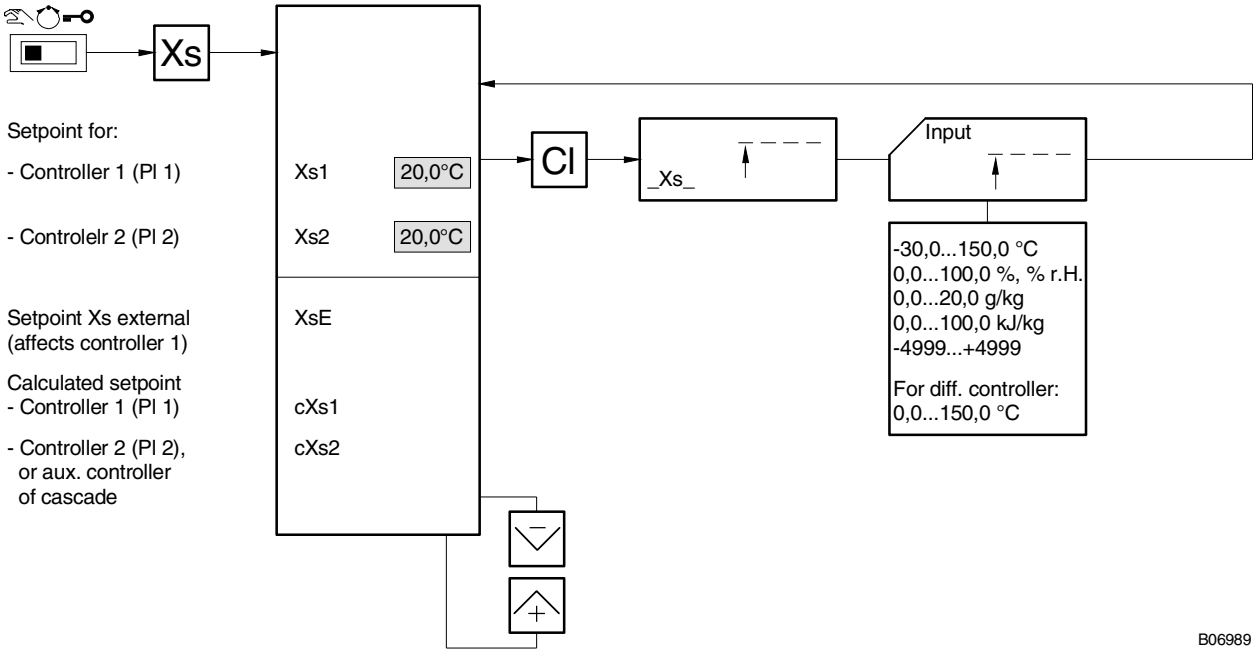
P	2-17
E	–

View control deviation



P	2-11
E	2-63

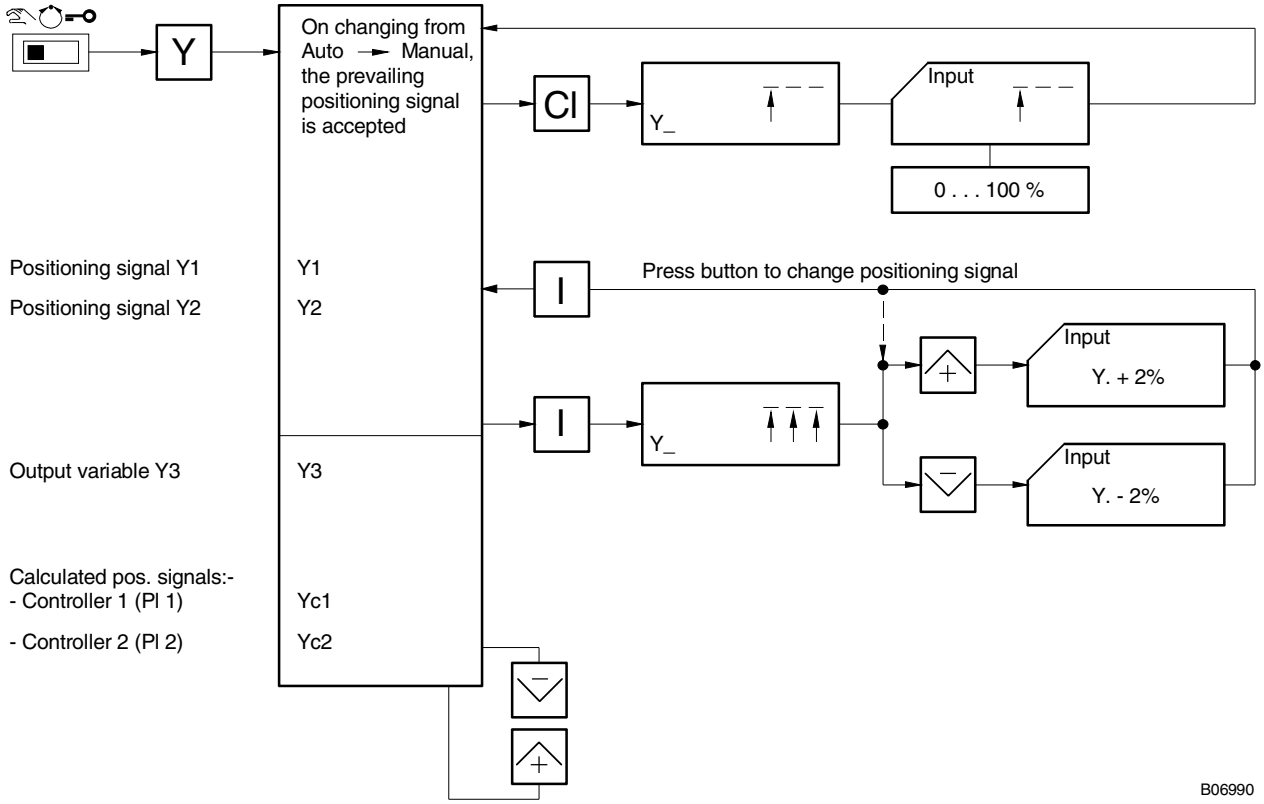
View and alter setpoints



View and alter positioning signals; view output variables

P	2-18
E	–

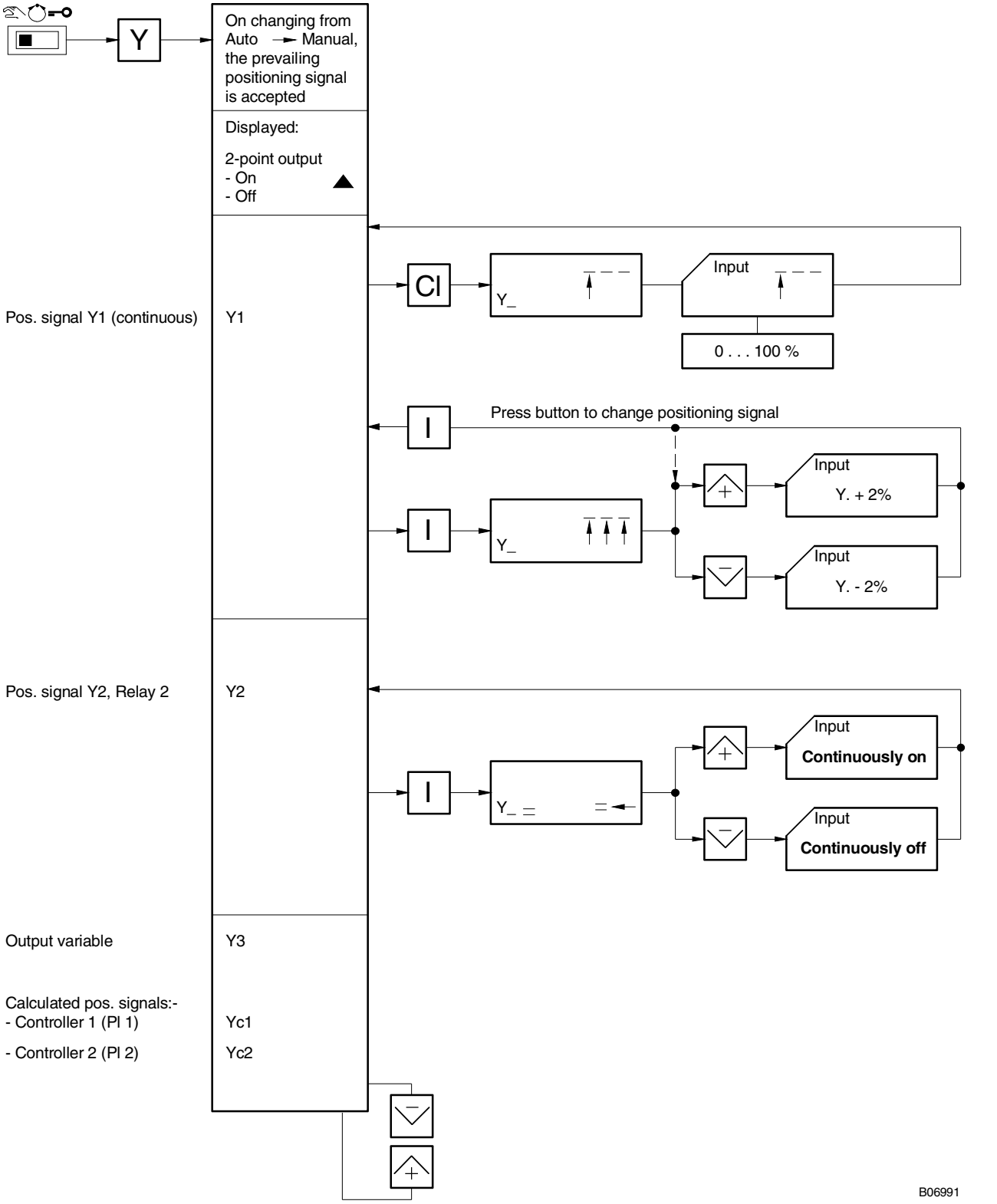
Models 0...14



View and alter positioning signals; view output variables

P	2-18
E	–

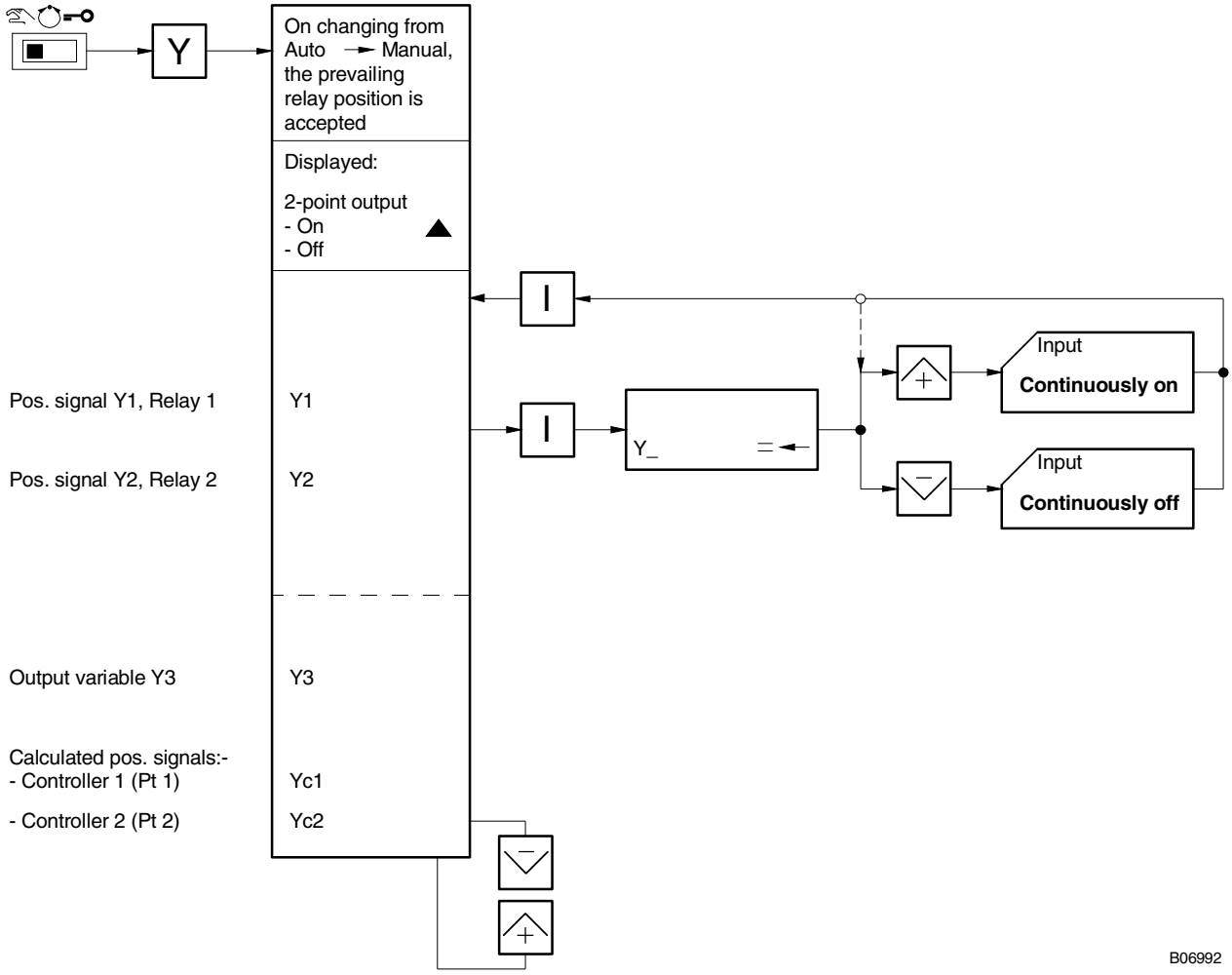
Models 15...18



View and alter positioning signals; view output variables

P	2-18
E	–

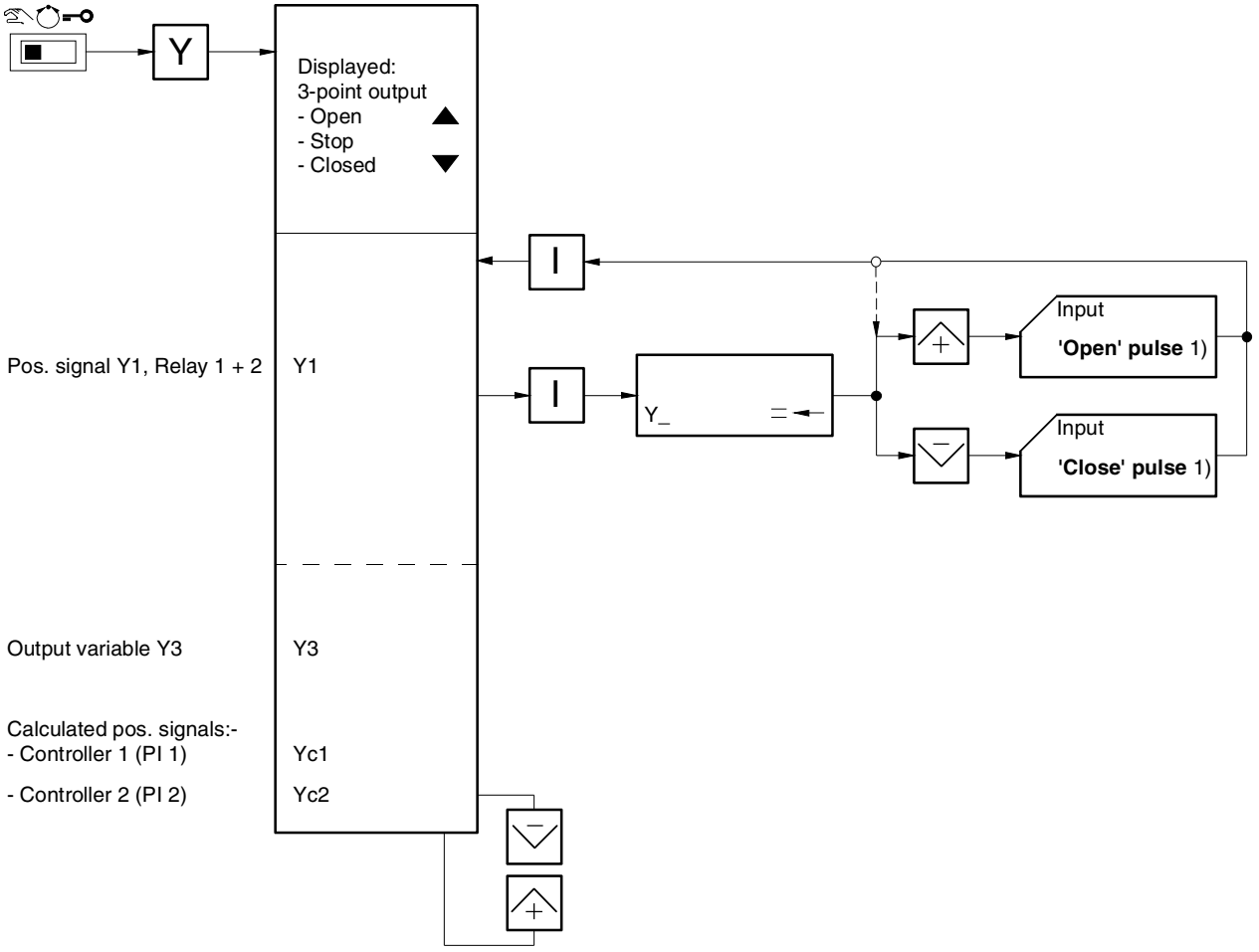
Models 20...29



View and alter positioning signals; view output variables

P	2-18
E	–

Models 30...35



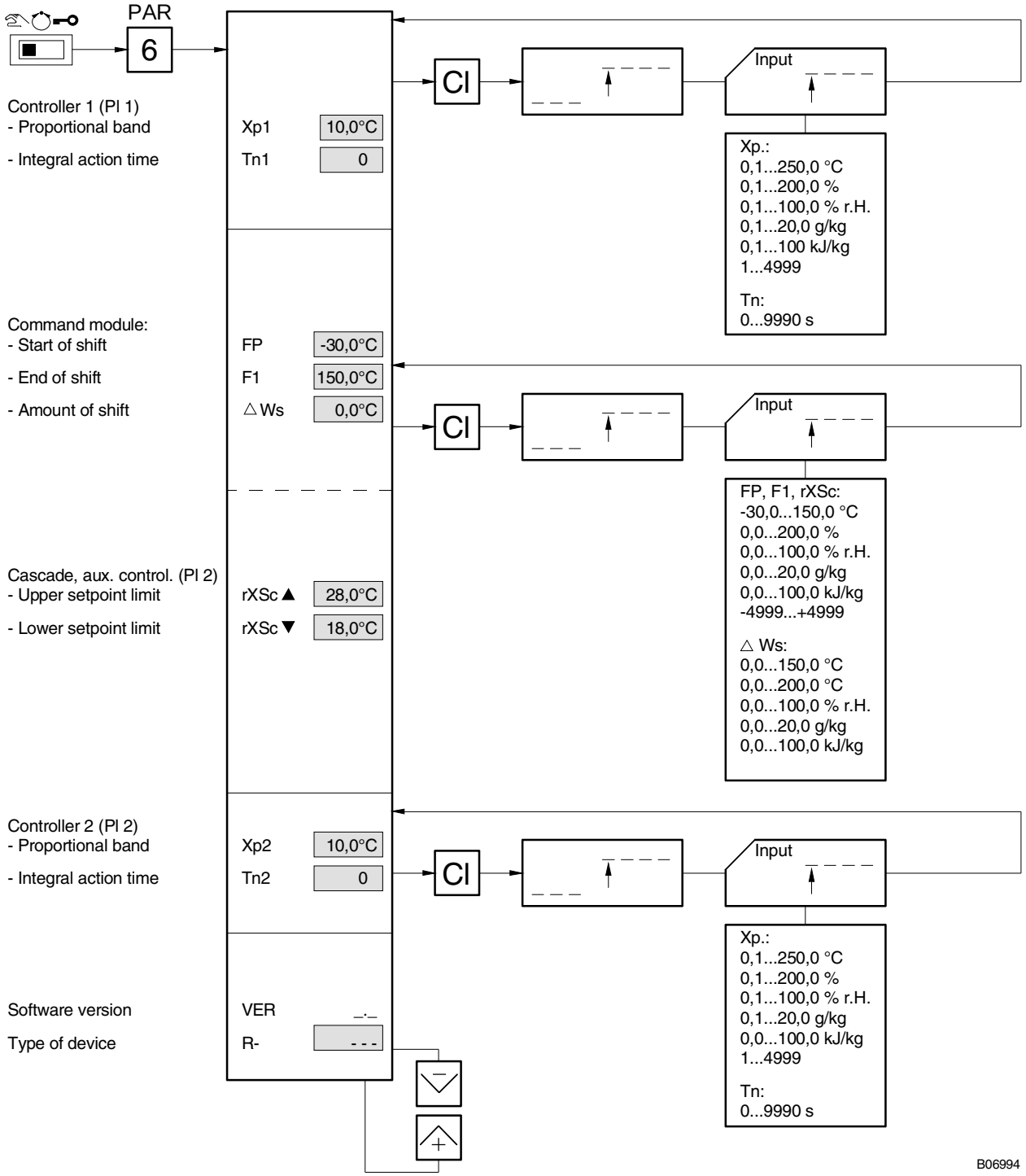
1) Pulse duration is 2% of motor's running time Tm.

B06993

View and alter control parameters

Models 0...14

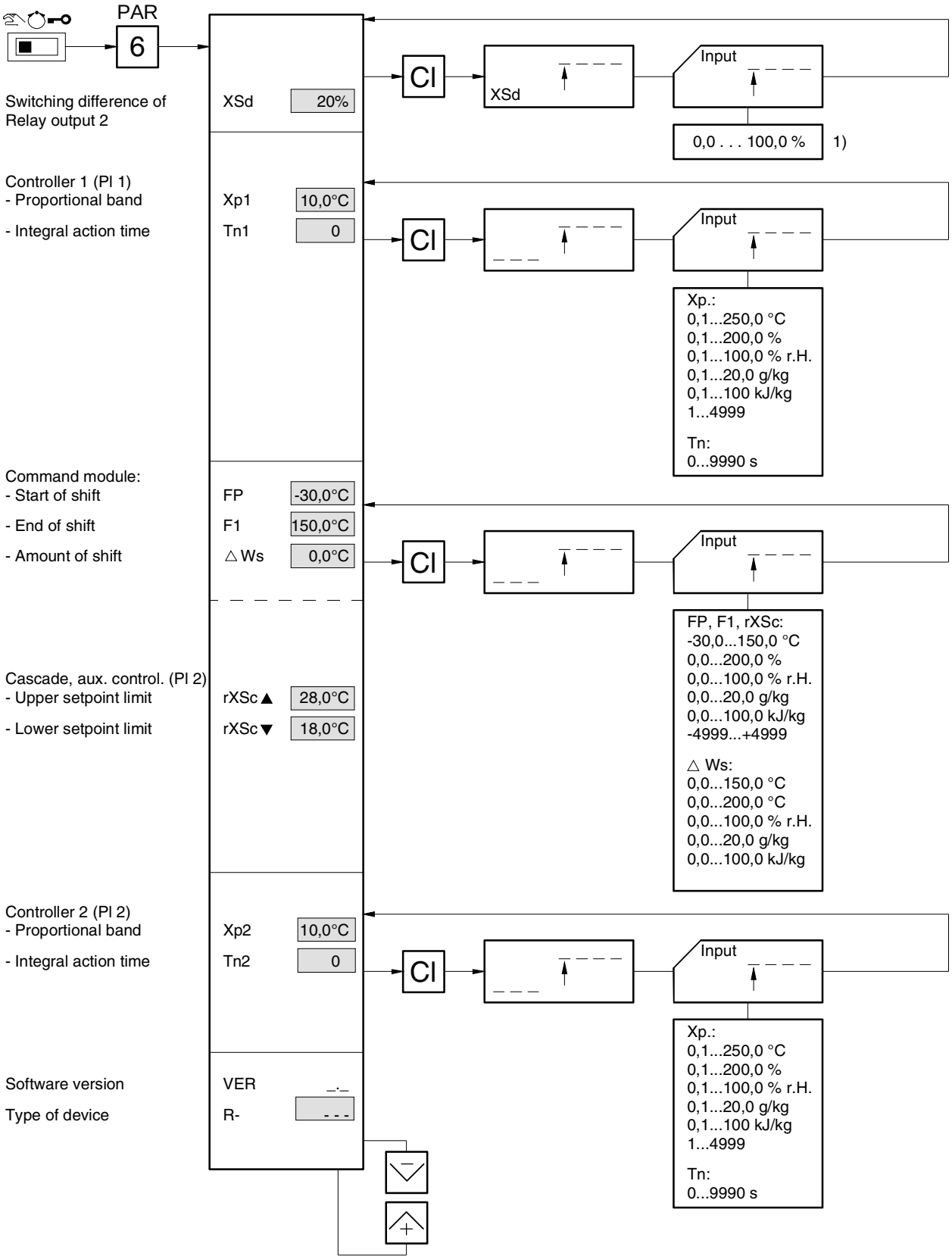
P	2-12/13/15/21
E	2-62/63



View and alter control parameters

P	2-12/13/15/21/22
E	2-62/63

Models 15...18



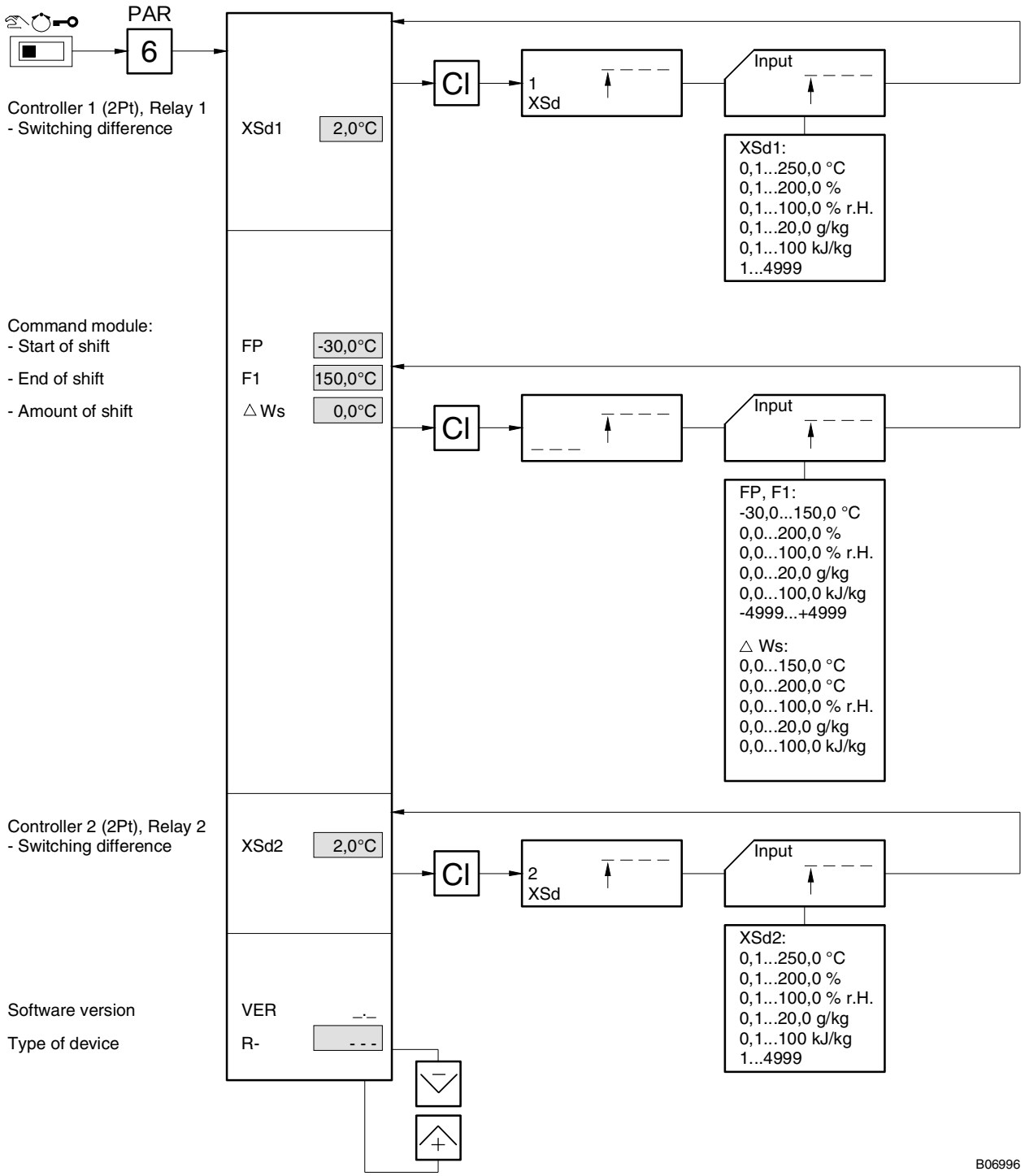
1) The input range is restricted by the value **bY2.**

B06995

View and alter control parameters

Models 20...29

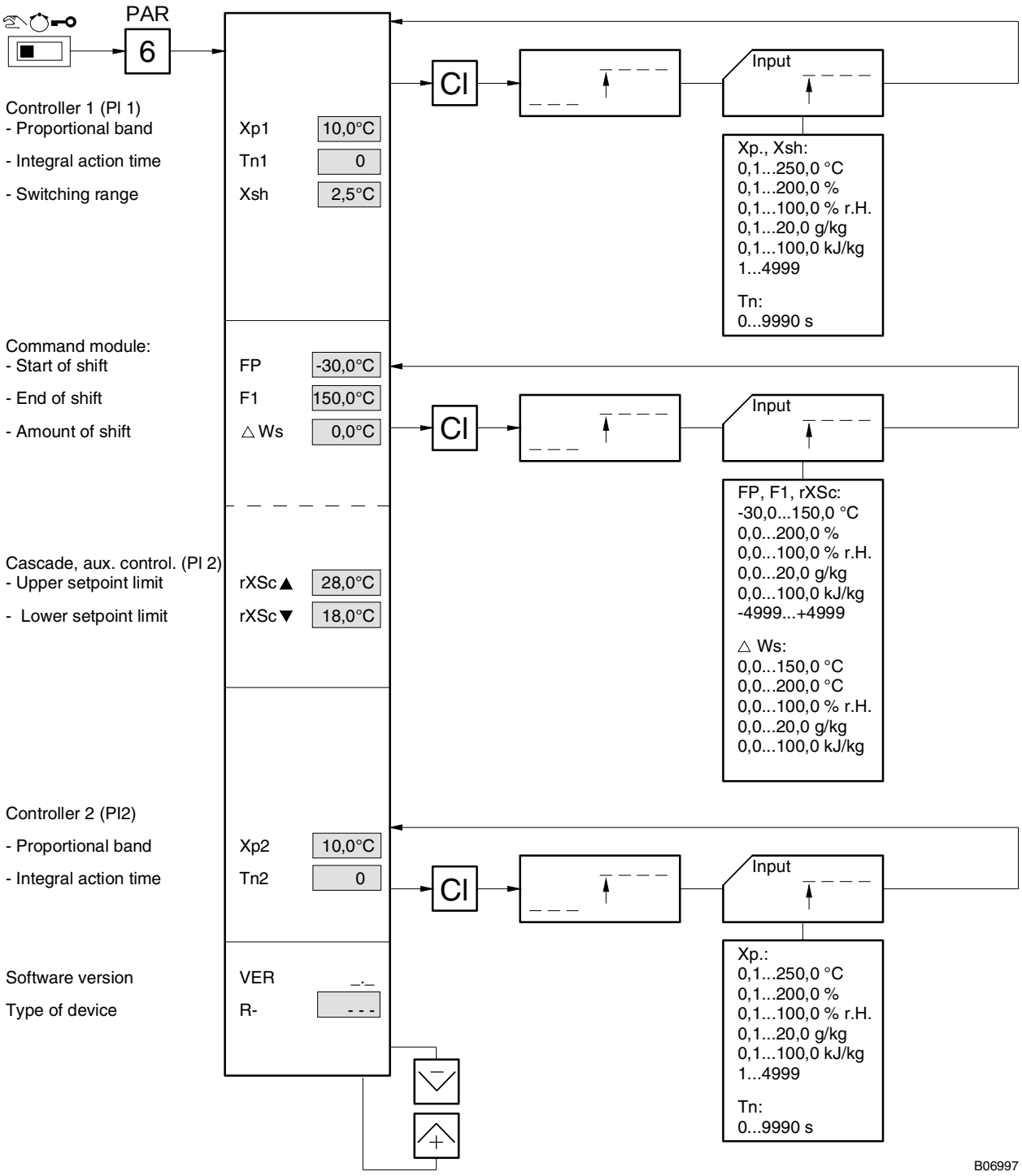
P	2-12/12/15/17/21/22
E	2-62/63



View and alter control parameters

Models 30...35

P	2-12/13/15/17/21/22
E	2-62/63



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